IN THE SPECIFICATION

Please amend paragraph [0006] beginning on page 6 of the Substitute Specification and Claims as follows:

[0006] In particular these objects are achieved in that in a high voltage vacuum tube an anode and a cathode are disposed opposite one another in a vacuumized inner space, in that the vacuumized inner space is enclosed by a cylindrical metal housing, and in that the anode and/or the cathode are electrically insulated by means of an annular insulator, the annular insulator comprising a cylindrical part ~~and being designed arched once, humped~~ having a curved humped arch in direction of the vacuumized inner space, the arch comprising in direction of the vacuumized inner space a front area sloping with respect to the axis of symmetrical rotation of the annular insulator, and two lateral areas, the sloping front area of the annular insulator of the anode being sloping toward the disc center of the annular insulator, and the sloping front area of the annular insulator of the cathode being sloping away from the disc center of the annular insulator. The arch is characterized substantially by angles α, β, and γ of a shortened lateral area, of a raised lateral area, and of the front area, the angle α between the axial direction of the annular insulator and the raised lateral area being between 10° and 25°, and the angle β of the front area to the perpendicular to the axial direction of the annular insulator being between 10° and 25°, and the angle γ between the shortened lateral area to the axial direction of the annular insulator being between 10° and 25°. In particular the insulator(s) according to the invention can be designed alternatively either cathode-side only, or anode-side only, or on both sides, i.e. on the side of the anode and on the side of the

cathode. One lateral area each of an insulator slopes toward the respective negative electrode, and runs over a larger region in its vicinity. At the anode, the wall of the cylindrical metal housing forms the negative electrode with respect to the insulator, while at the cathode the metallic outer wall of the cathode forms the negative electrode with respect to the insulator. The connection point between the respective negative electrode and the corresponding insulator is designated as the negative triple point. The high voltage vacuum tube can be used e.g. as an X-ray tube. The above-mentioned design has the advantage that during operation an extraordinarily high stability of the tube is achieved through the arising electrical field, without resulting in breakthroughs in the insulator anode-side and/or cathode-side, gas eruptions and/or other malfunctions At the same time the tube can be operated at much higher voltages and with smaller or respectively more compact construction than conventional tubes. The dimensions of the tube and the voltage at the insulator are in a direct relationship to one another. The smaller the construction, the greater the insulator's capability must be to withstand voltage at the electrode. The advantages of a smaller and more compact construction for such tubes are evident. Smaller and more compact tubes are cheaper to produce, are less heavy, and easier to handle. This especially concerns e.g. any necessary lead shielding, etc. Achieved through the special form of the insulator is that a critical part of the tube is electrically shielded, namely the negative triple point, at which, as mentioned, the negative metal electrode, the ceramic and the vacuum come together, and which promotes in particular the emission of electrons. The emission of electrons is thereby inhibited. On the cathode-side this triple point is located in the soldered technical connection between the insulator and the high voltage supply in the center of the insulator. On the anode side, on the other hand, the triple point is situated in the soldered technical connection between the outer

periphery of the insulator and the cylindrical metal housing. The shielding takes place through a forced charging of the ceramic in the vicinity of the negative triple point by emitted electrons. Through the shaping of the insulator, a very high field is initially created in the region of the triple point, sufficing already at lower voltages (e.g. during a start-up phase in the operation of the tube) to release electrons from the metal. These electrons charge the ceramic to such an extent that the electrical field in this region is reduced such that the electron emission is disrupted. The special shape of the insulator prevents the electrons from being able to reach the positive counter electrode via the ceramic or through the vacuum. The condition is thereby stabilized. Achieved in addition, by means of the sloping front side, is that electrons which are released from the negative metallic electrode at higher voltage outside the above-mentioned region reach the positive electrode directly through the vacuum, and are not accelerated on the ceramic surface. An avalanche-like multiplication of the free electrons and with it an intense sparking over by secondary electrons over the ceramic surface is thereby prevented. Thus through the unusual shape of the insulator the capability to withstand voltage and the life of the vacuum tube can be significantly increased.